

# Review Question #1

Place the following in order and match them to their discovery or idea.

- |                |                               |
|----------------|-------------------------------|
| 1. Gell-Mann   | a) named and defined the atom |
| 2. Chadwick    | b) atomic theory              |
| 3. Schrodinger | c) electron                   |
| 4. Bohr        | d) positive nucleus (proton)  |
| 5. Rutherford  | e) energy levels              |
| 6. Thomson     | f) electron cloud model       |
| 7. Dalton      | g) neutron                    |
| 8. Democritus  | h) quarks                     |

## **Review Question #2**

**List the number of protons, neutrons, and electrons for the following elements:**

**Mercury:**

**Arsenic:**

**Aluminum +3 ion:**

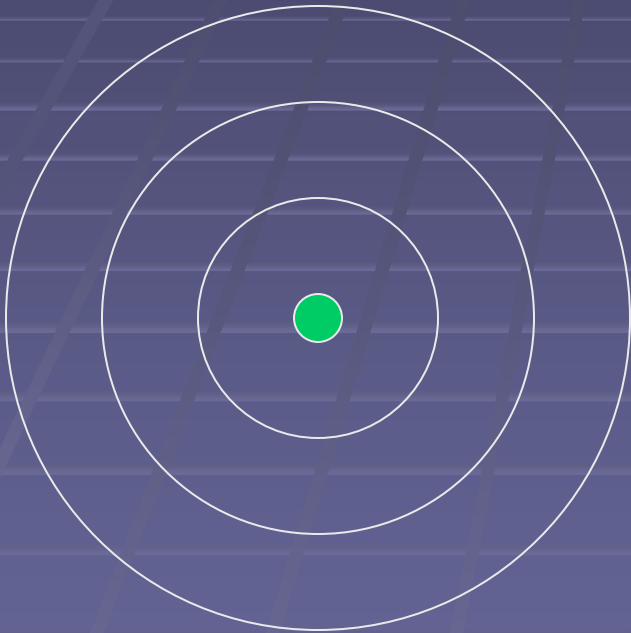
# Review Question #3

**Look at the following atom pairs. Label atom B as an ion, isotope, or different element.**

1. Atom A: 10 protons, 10 neutrons, 10 electrons  
Atom B: 10 protons, 11 neutrons, 10 electrons
2. Atom A: 9 protons, 10 neutrons, 10 electrons  
Atom B: 9 protons, 10 neutrons, 9 electrons
3. Atom A: 28 protons, 31 neutrons, 28 electrons  
Atom B: 2 protons, 2 neutrons, 2 electrons
4. Atom A: 6 protons, 6 neutrons, 6 electrons  
Atom B: 6 protons, 6 neutrons, 8 electrons

# Review Question #4

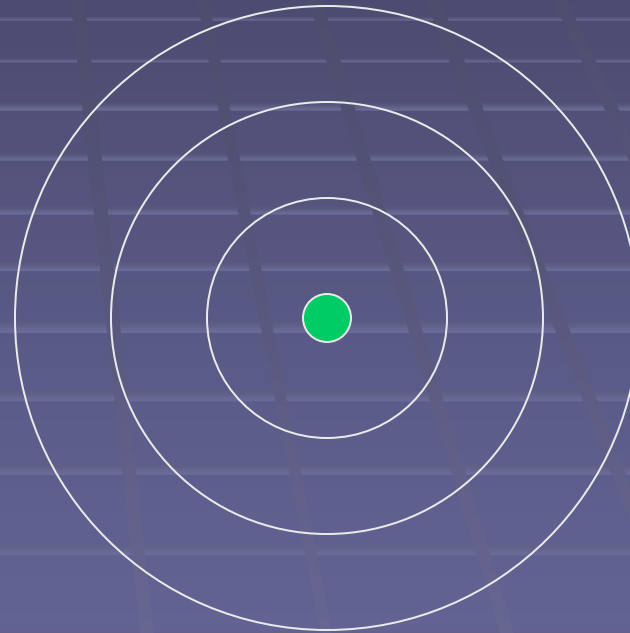
Draw the Bohr model for each of the following atoms:



**Calcium**

**P<sup>+</sup>**

**N<sup>o</sup>**



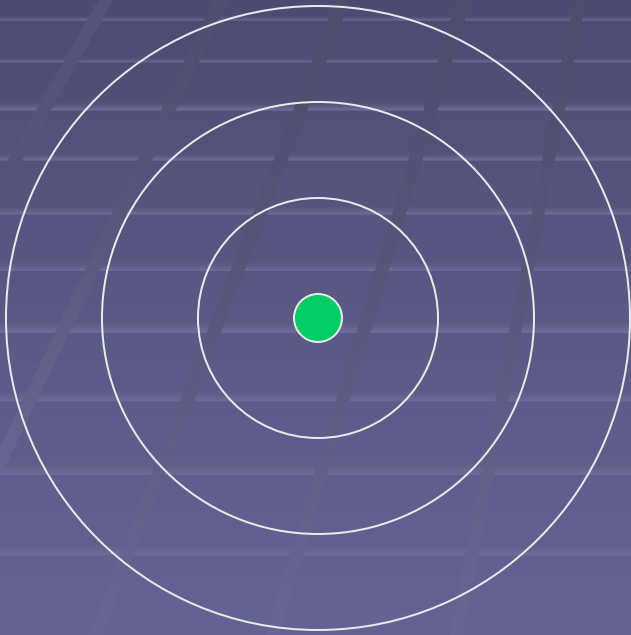
**Chlorine**

**P<sup>+</sup>**

**N<sup>o</sup>**

## Review Question #5

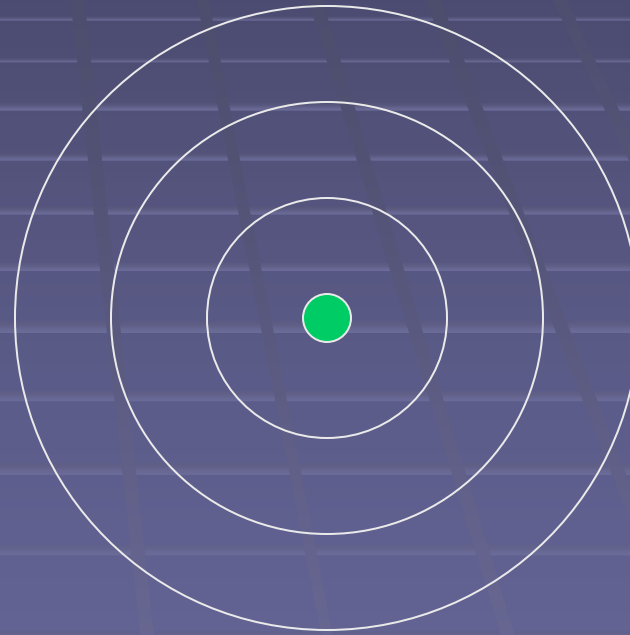
Draw the Bohr model for each of the following atoms:



**Titanium +2 ion**

**P<sup>+</sup>**

**N<sup>o</sup>**



**Nitrogen -3 ion**

**P<sup>+</sup>**

**N<sup>o</sup>**

## Review Question #6

Compare the masses of the proton, electron, and neutron. State your answers in atomic mass units or grams.

**Proton:**

**Electron:**

**Neutron:**

## **Review Question #7**

**Carbon-14 dating is a way of determining the age of certain archeological artifacts of a biological origin up to about 50,000 years old. It is used in dating things such as bone, cloth, wood and plant fibers. How is Carbon-14 different from all other atoms of carbon?**

## **Review Question #8**

**Two electrons decide to see how far they can jump. The first electron jumps eight nanometers, the next one jumps eighteen nanometers. The winner gets to spend thirty-two days in the nucleus.**

**What is the significance of this story to what we learned in chapter 4?**



## **Review Question #9**

**What two parts of Dalton's atomic theory were incorrect? Why?**

## **Review Question #10**

**What is indirect evidence? How did it help humans figure out the secrets of the atom?**

## **Review Question #11**

**Compare the mass and volume of the nucleus to the total mass and volume of the atom.**

## **Review Question #12**

**What is the difference between the atomic mass and atomic number?**

## **Review Question #13**

**The atomic number of Magnesium is 12 and its atomic mass is 24. How many protons, neutrons, and electrons are in an atom of Mg?**

# Review Question #14

## “Explain the punch-line”

